"*MOKEL. HILL, CAL.*"—(Dr. Blaisdell practiced medicine at Mokelumne Hill, Calaveras County, 1892–1900.)

(1) "O" with a red center—Glencoe, 10 miles northeast of Mokelumne Hill.

(2) "K" reddened—West Point, 20 miles northeast of Mokelumne Hill.

(3) Red line under "HILL"—Same as preceding: West Point.

"*Napa Co. Cal.*"—With a red dot over first "a" in Napa, is St. Helena, Napa County.

Other Locality Labels:

"*Ky.*"—With a red line over the "y" is Versailles, Woodford County, Kentucky.

"*Or.*"—

(1) "O" with a red line across center—Oregon City, on Willamette River, 15 miles south of Portland.

(2) Plain, no markings—From about Portland and St. Johns on Willamette River.

"*W.T.*"—"Plain label about Seattle, Washington State. A few bearing such in my collection have been taken at Vancouver, Columbia R. Others received by exchange."

EVIDENCE FOR HURRICANE TRANSPORT AND DISPERSAL OF AQUATIC HEMIPTERA

Jon L. Herring
University of California, Berkeley

Although Aerobiology, the study of the dissemination of insects, pollen, microörganisms and other objects, has attracted considerable interest, very little attention has been paid to the part that tropical disturbances play in the transport of insects. Hurricanes are not rare phenomena but occur with amazing frequency in the tropics and provide a dynamic means of distributing organisms.

Three species of water-striders have long held my interest as they are all of West Indian and Central American origin and one in particular was definitely introduced by the hurricanes that lashed Florida in 1947 and again in 1950.

The Fall of 1947, particularly September and October, was

one of much tropical disturbance in Florida. Hurricanes originating in the French West Indies struck the coast time after time. These storms, like most hurricanes of the area, began in the Lesser Antilles and moved northwestward across Puerto Rico, Dominican Republic, then across Cuba or the Bahamas into Florida.

When the weather cleared, after a particularly severe hurricane of 1947, I had occasion to collect insects in the Florida Keys. On Big Pine Key, Monroe County on November 27, I found a large colony of *Rheumatobates minutus* Hungerford and *Microvelia portoricensis* Drake. Both species were known before from Puerto Rico and in the case of *R. minutus*, Yucatan and Panama also. I collected many specimens from a small pond in coral rock. The pond was a temporary one that had been filled by the heavy rains of the preceding storms. The two species apparently did not become established as further collecting in the early Spring of 1948 failed to reveal a single specimen. Additional evidence for the hurricane transport of *R. minutus* is shown by its sudden appearance on a small pool at Florida Southern College in Lakeland. It was discovered at the end of the hurricane season of 1950. The small pool on the campus of the university was under almost daily examination by Dr. Roland Hussey prior to the appearance of this insect, so it could have hardly escaped his attention. As in the case of the Florida Keys colony, this one did not become established either but disappeared in a few days. Both alate and apterous forms were collected in the Keys; Dr. Hussey reports alate and partially de-alated specimens from Lakeland.

The third species is *Rheumatobates clanis* Drake and Harris, known previously from British Honduras and northwestern Cuba. I collected it from salt water on the Gulf coast of Florida (Bayport, Hernando County) on a single occasion after the hurricane of 1947, mentioned above. Whether this species has become established is unknown..

It seems plausible that all three of the above species were transported in the adult stage, inasmuch as I do not have nor do I recall seeing nymphs of any of these species. It seems unlikely that eggs or nymphs could have been transported, reached the adult stage yet not managed to survive for a few months.